International Journal of Mass Emergencies and Disasters
November 1987, Vol. 5, No. 3, pp. 347-355

NATIONAL ORIGIN AND EARTHQUAKE RESPONSE: LESSONS FROM THE WHITTIER NARROWS EARTHQUAKE OF 1987*

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Although earthquake hazards in the United States are not limited to California, there is considerable concern about the potential impacts of an imminent major damaging earthquake there. The U.S. Geological Survey estimates it is highly probable that an earthquake of 8.2 magnitude on the Richter scale will occur on the southern portion of the San Andreas fault near Los Angeles in the next 30 years (Lindh 1983; Wesson and Wallace 1985). Losses from such an earthquake are projected to be $25 billion in 1980 dollars, with over 50,000 persons made homeless and up to 12,500 deaths (FEMA 1980). Other conceivable earthquakes in the region, with lower probabilities of occurrence, could cause even greater loss of life and property, depending on their location. For example, a 7.5 earthquake on the Newport-Inglewood fault which runs near the central business district of Los Angeles is projected to cause up to 21,000 deaths, make 200,000 persons homeless and cause over $60 billion in damage (Steinbrugge et al. 1981).

Because of the threat of such a devastating disaster, with losses exceeding any other natural disaster experienced in American history, a considerable amount of research has taken place on likely responses to the earthquake and ways to mitigate its most serious impacts. Each small or moderate earthquake becomes a test case to investigate response and

* Acknowledgement: Travel costs for Ms. Rubin were supported under NIMH grant #1RO1MH40376-02.

identify potential problems associated with the major catastrophe to come.

The purpose of this report is to cull some lessons from the recent moderate earthquake in Whittier Narrows, California that occurred in October of 1987. The lessons of this earthquake indicate the need for in-depth geographical and ethnographic research on the many ethnic minorities in the Los Angeles region in order to better understand their likely responses and to provide assistance to help those agencies responsible for emergency services more effectively carry out their responsibilities.

What do we know about likely response of individuals to a major natural disaster such as an earthquake? Research anticipating the response of Californians to the "great" earthquake to come has frequently been based on survey research of native-born, English-speaking Americans or homogeneous populations in other settings. The two major studies of minority populations (Perry et al. 1983; Bolin and Bolton 1986) have considered "ethnicity" of native-born minority populations, but not the issue of national origin on disaster response. Several of the findings from previous research are relevant.

First, previous research on homogeneous populations anticipates that disaster victims generally react in an orderly and rational manner (Dynes 1970; Mileti et al. 1975, Drabek 1986). Second, severe emotional disturbances are infrequent (Mileti et al. 1975), although more disruption follows events that occur suddenly, where there is broad destruction and where there is uncertainty, characteristics that describe the earthquake situation (Fritz 1957; Fritz and Marks 1954). Third, most evacuees will seek aid from their families, but others will go to public shelters. For example, Moore et al. (1963), writing about the response to Hurricane Carla, found that "in general, the poor went to public shelters. Middle income families went to private homes, or motels." Finally, because of the contributions of neighbors and kin groups, victims often need fewer emergency services or housing than anticipated: "formal emergency housing is often underused because the homeless are taken in by friends, relatives, and sometimes strangers" (EERI 1986, p.171).

The implications of these findings are clear. After a major devastating event, there is unlikely to be panic or large numbers of severely psychological impaired individuals. Instead, there should be a relatively orderly response to the emergency, and the best advice to policymakers is that government and private agencies concerned with emergency response should proceed with plans to provide temporary emergency shelter and supplies after the emergency.

The two principal research projects that have sought to probe ethnic or racial variability in disaster response also have reached interesting conclusions. The Perry et al. (1983) study of American minority citizens in disaster suggests that Mexican-Americans tend to rely more on kin than do other groups in the event of a disaster. They suggest a complex relationship between beliefs, risk and evacuation, with differences between minority groups and white Anglos with respect to "locus of control" and the impacts of locus of control on response to warnings.

The Bolin and Bolton (1986) study indicates that Mexican Americans are more likely than others to use public and volunteer sources of relief such as that provided by organizations such as the Red Cross. Based on their study of response to the Coalinga earthquake of 1983, they found that "Hispanics were also the more frequent users of Red Cross, Salvation Army, food stamps, and temporary housing programs; and they were much more likely to use multiple sources of aid" (p. 210). It should be noted that the Hispanics of Coalinga were fairly homogeneous -- "mainly Mexican-American or Mexican national" (p. 202). Bolin and Bolton also suggest that particular "ethnic/cultural traditions tend to keep some victims out of the formal aid network" (p. 223), as exemplified by the Mormons who are likely to turn to the church rather than to government-sponsored disaster relief organizations.

The research to date has not dealt the impacts of either ethnicity or national origin on disaster response. These characteristics are particularly relevant in understanding the response of the increasingly diverse population of the Los Angeles region to future earthquakes. Let us review the current composition of the Los Angeles area population with respect to ethnicity and national origin and then turn to the implications of this population composition for disaster response preparation.

What is the current ethnic composition of the greater Los Angeles metropolitan area? The six-county Southern California region, including Imperial, Los Angeles, Orange, Riverside, San Bernardino and Ventura counties, house a population that is diverse in income, ethnic background and language. The region had a population of about 11.6

million in 1980. It houses families of extremely diverse income: one estimate (Baer 1986; Southern California Association of Governments 1984) indicates that there were 11,000 housing units valued at $1,250,000 or more and at the same time there were 30,000 homeless individuals in the region. The numbers and proportions of non-whites and non English-speaking persons is burgeoning. The Southern California Association of Governments (1984) estimates that between 1980 and 2000 the number of Asians will increase by 3.2 million. These increases ar due largely to immigration from such origins as the Philippines, Korea, Mexico, El Salvador, and Nicaragua. These immigrants, many of them with limited financial resources, cannot and should not be expected to respond as has been anticipated based on surveys of native-born middle-income individuals. This difference in response due to **national origin** is documented by the reactions of individuals to the recent relatively small earthquake in Whittier in October 1987.

THE WHITTIER NARROWS EARTHQUAKE

The Whittier Narrows earthquake was an earthquake of moderate magnitude (initially rated 6.1 on the Richter scale but later revised to 5.9 by geologists) with no markedly unusual characteristics from the standpoint of physical scientists and engineers. Whittier, the city nearest the epicenter of the earthquake, is a community of almost 70,000 persons.

Claire B. Rubin went to Whittier to observe the damage and the extent of its impact on local families. The trip was a reconnaissance visit in connection with another ongoing research project, "Family response to disaster-initiated relocation," which is a four-year study of how families respond to residential relocation caused by a major natural disaster and how this response pattern affects the subsequent psychosocial recovery process for individuals within those families[1]. Ms. Rubin and another project staff member spent two days on site, about two weeks after the earthquake occurred. During that time they (a) interviewed some local public officials, community organization leaders, and citizens; (b) talked to some mental health professionals at the local, state and national levels; and (c) met with staff members of the Red Cross and FEMA, both in the on-site service centers and in the Disaster Assistance Center in El Cerrito. While Whittier ultimately was not selected as a field site for the other project, the information gained from the field visit had implications for conclusions hinted at in previous work and important to consider in future work.

Damage was scattered throughout the community; in total, about 382 housing units were determined by the local building department to be "unsafe to occupy" two weeks after the event. Many of those buildings were anticipated to be re-opened after repairs were made or they were certified safe by an engineer or architect.

The geophysical aspects of the earthquake were not highly unusual, but the behavioral responses were surprising. These post-earthquake responses may serve as a useful preview of what might happen when the larger magnitude catastrophic earthquake, which scientists expect to occur in this century, does occur in this same Southern California metropolitan region.

Some of the unexpected responses to the earthquake are probably attributable to the mix of population in Whittier. Yet, it should be noted that Whittier has a relatively smaller proportion of ethnic minorities than do other Los Angeles area communities. And again, the Whittier Narrows earthquake was only a moderate one in magnitude. Thus, the responses observed here could well be magnified in areas with larger immigrant populations under conditions of far more widespread damage. It is therefore important to study these responses and consider their implications.

UNANTICIPATED RESPONSES

Four unanticipated responses to the earthquake were observed, each of which has significant implications for the larger earthquake expected in the region within the next 30 years. First, there was an over-response or over-reaction on the part of some of the recent immigrants both to the initial moderate magnitude earthquake and to the aftershock that occurred two days later. Preliminary accounts of the aftermath of the earthquake indicate a great deal of emotional distress, with relatively large numbers of persons seeking help from mental health professionals. Mental health professionals[2] at the local and state levels related anecdotal accounts of some high school students and others who displayed

symptoms of severe psychological distress in the aftermath of the earthquake and the aftershock.

Second, many foreign-born residents refused to go into the shelters designated by the Red Cross or by local authorities. Part of the reason for this refusal was an expressed fear of all structures during an earthquake. Part of this reluctance to re-enter any building may be related to the previous experience of the immigrants from Mexico, El Salvador, and Nicaragua. All of these nations have had devastating earthquakes within the last decade. Further, in some of these nations, the design or construction is not adequately seismic-resistant, and some of the immigrants saw or experienced major structural failure or total collapse of buildings. Their previous experience in their homeland thus made them wary of entering buildings in Los Angeles, a phenomenon that would not be expected of native-born residents.

Third, there was an unexpected degree of avoidance of government officials and the Red Cross. A number of victims refused to come to the Red Cross Service Center for assistance, apparently because of the presumed connection between the Red Cross and the national government or military, a situation that exists in some Latin American countries but not in the United States. Anthropologists working in Central American nations make the assumption that connection with the Red Cross or any other assistance organization engenders suspicion and fear on the part of residents, and that there is a tendency to avoid any organization that requires registration or proof of identity as a condition for aid (Sheets 1987). Without this ethnographic understanding, local and federal government officials and representatives of the Red Cross are unlikely to understand the resistance to aid offered only with registration or identification. In sum, the Red Cross could not aid the immigrant population because they did not have the same level of trust of this organization that native-born Americans do.

Some victims also refused to come into the local Disaster Assistance Center (DAC) which houses the local, state, federal officials and others (such as the Red Cross liaison). The DAC is intended to be a one-stop assistance center, making it easier for the victim to get post-disaster assistance needs met. In addition to the general resistance to government authority, it may be that some of the immigrants who do not yet have permanent resident status were afraid to deal with either the FEMA or

the Red Cross because they assumed that the receipt of disaster assistance would make their application to the Immigration and Naturalization Service unacceptable. In short, many persons who probably were in need of and deserving of public or private assistance did not register for it out of ignorance and fear. Hence, some people--the number will never be known--were not aided by the very network of services and assistance designed to help disaster victims.

Fourth, estimates of the number of disaster victims was overstated, owing to the response of the Los Angeles homeless population to post-earthquake assistance. The Whittier area Red Cross (Rio Hondo Chapter) noted that a large number of homeless individuals sought shelter and took meals at the facilities set up for the disaster victims. In the first few days after the earthquake, some homeless persons, not only from Whittier but also from the metropolitan Los Angeles area, heard that the Red Cross Service Center in Whittier was open and took advantage of it. Some of the homeless were prepared with local addresses, stories of displacement from their residence, and even business cards in order to take advantage of the shelters and food provided, according to a Red Cross staffer. What this suggests is that unexpected numbers of persons will have to be served by disaster assistance groups, even exceeding the direct disaster victims.

DISCUSSION

Of course, the problem of provision of shelter, even in ordinary times, is difficult in a metropolitan area like Los Angeles with its burgeoning foreign-born and low-income population. Neither private industry nor the government has taken steps to provide decent, safe and sanitary permanent housing for the large, poor, multiethnic immigrant population. What the Whittier Narrows earthquake revealed is that there is also a problem of providing short-term sheltering and emergency assistance to this segment of the population, an issue that has not been identified or addressed to date. In addition, the removal of low- and moderate-cost housing from the total housing stock due to earthquake-related damage or destruction, adds further problems for the impacted localities.

In addition, the issue of providing assistance to low-income persons with little or no fluency in English and questionable immigrant status is

a serious one. These people are unlikely to have an adequate understanding of the objective risks of an earthquake to their homes and work places. They are unlikely to have the means for taking long-term earthquake mitigation measures. And they are resistant to organized governmental or charitable aid.

Although the Whittier Narrows earthquake was not particularly significant to the community of physical scientists and engineers, it may become a landmark event from the standpoint of social scientists and social welfare service providers. This earthquake highlights some of the fundamental changes in our society as a result of the sizeable immigration from non-European countries, and the implications of this new settlement on earthquake preparedness. It clearly points out the need for immediate geographic and ethnographic research so that we can make our response systems sensitive to cultural factors that might otherwise impede their effectiveness. The Whittier Narrows earthquake gives us the opportunity to pause and consider the needs of this very large number of Los Angeles region residents. Immediate research on the ethnographic implications of recent immigrant resistance to emergency services is needed if we are to effectively provide the safety net we intend by the time the great earthquake strikes.

NOTES

1. She is co-principal investigator of this project, which is underway at the George Washington University School of Medicine. Funding assistance has been provided by the National Institute of Mental Health.
2. From conversations with a few mental health professionals at the local, county, state, and national levels.

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